

## REMARKS

In response to the Office Action mailed on 9th September, 2005, Applicant wishes to enter the following remarks for the Examiner's consideration. Applicant has added new claims 34-36. Claims 1-36 are pending in the application.

### **Rejection of claims under 35 USC §102**

Claims 1 and 31 have been rejected under 35 USC §102(a) as being anticipated by Ao (US 2004/0233692). Applicant respectfully traverses this rejection of the claims.

Claim 1 calls for the magnitude comparator to produce first and second magnitude signals as outputs. The first magnitude signal indicates if the comparison value is greater than the data value and the second magnitude signal indicates if the comparison value is less than the data value. Thus, at least three output states are possible, for example (with positive logic) the states: (1,0), (0,1) and (0,0). The third state (0,0) occurs if the data value and the comparison value are equal. This is illustrated by Table 1 in the specification, for example. The Ao reference only teaches a single output, so only two output states are possible (0 or 1, as indicated by the examiner). Thus, the applicant submits that the comparator 219 of Ao is not equivalent to the magnitude comparator of claim 1.

Claim 31 similarly calls for the comparison means to generate first and second magnitude signals as outputs. In contrast, Ao's comparator has only a single output that can generate either a first signal (0) or a second signal

(1), but not both.

In light of the foregoing remarks, Applicant respectfully submits that the Ao reference does not teach, suggest, disclose or otherwise anticipate the recitations of claims 1 and 31. Applicant thus respectfully requests that this basis of rejection of the claims be withdrawn and that a Notice of Allowance for these claims be mailed at the Examiner's earliest convenience.

Claims 17-19 have been rejected under 35 USC §102(a) as being anticipated by Ao (US 2004/0233692) or, in the alternative, under 35 USC §103(a) as being obvious over Lin (US 5,422,838). Applicant respectfully traverses this rejection of the claims.

Claim 17 calls for the magnitude comparators of the MCAM cells to be operable to produce a first magnitude signal indicating whether the comparison word is greater than the data word and a second magnitude signal indicating whether the comparison word is less than the data word. As discussed above with reference to claims 1 and 31, the Ao reference teaches a comparator with a single output that is only indicative of two states, whereas the two output signals of claim 17 are indicative of at least three states.

The Lin reference describes a CAM rather than an MCAM. A CAM compares two values and determines if they are equal or not. Thus, there are only two output states – equal or not equal. The Lin reference does not disclose a magnitude comparator that determines if the data value is less the comparison value or greater than the comparison value. Lin's output is "not equal" in both cases. Lin provides no motivation to add a magnitude comparator, nor does he provide motivation to add additional output signals to

generate output states.

Claims 18-19 depend from claim 17.

In light of the foregoing remarks, Applicant respectfully submits that neither the Ao reference nor the Lin reference teach, suggest, disclose or make obvious the recitations of claims 17-19. Applicant thus respectfully requests that this basis of rejection of the claims be withdrawn and that a Notice of Allowance for these claims be mailed at the Examiner's earliest convenience.

#### **Rejection of claims under 35 USC §103**

The Examiner acknowledges that the Ao reference fails to teach, disclose or suggest the recitation of claims 14-15, and relies upon the teachings of Schultz (US 5,995,401) to overcome this defect. Applicant respectfully traverses this rejection of the claims.

Claims 14-15 depend from claim 1. As discussed above with reference to claim 1, the Ao reference does not teach an MCAM having first and second magnitude output signals. The Schultz reference does not cure this defect.

The Schultz reference describes a CAM rather than an MCAM. A CAM compares two values and determines if they are equal or not. Thus, there are only two output states – equal or not equal. Whether the data value is less the comparison value or greater than the comparison value, Shultz's output is "not equal". Shultz provides no motivation to add additional output signal to generate more than two output states.

Even if one were to combine the Ao reference with the Shultz reference, the result would not be the claimed invention of claims 14-15.

In light of the foregoing remarks, Applicant respectfully submits that the Ao and Shultz references, whether considered alone or in combination fail to teach, disclose, suggest or otherwise render obvious the recitations of claims 14-15. Applicant thus respectfully requests that this basis of rejection of the claim be withdrawn and that a Notice of Allowance for claims 14-15 be mailed at the Examiner's earliest convenience.

### **Allowable Subject Matter**

Applicant notes that claims 2-13, 20, 32 are allowable if rewritten in independent form. As argued above, applicant submits that independent claims 1 and 31 are allowable. However, applicant reserves the right to rewrite the claims in independent form if the rejection of independent claims 1 and 31 stands.

### **New Claims**

Applicant has added new claims 34-36.

Claim 34, and its dependent claim 35, call for a magnitude comparator coupled to the first memory cell and operable to generate an output magnitude signal dependent upon a comparison value, the data value and a previous magnitude signal (also called a 'carry signal', page 8, lines 4-6).

Similarly, claim 36 calls for the magnitude comparator of an MCAM cell to be responsive to the bit of the data word, a corresponding bit of a comparison word and an input carry signal (also called a magnitude signal,

page 8, lines 4-6). The magnitude comparators of the MCAM cells are connected in a series arrangement, such that the output carry signal of an MCAM cell magnitude comparator in the series arrangement is provided as the input carry signal to a subsequent MCAM cell magnitude comparator in the series arrangement. The input carry signal of an MCAM cell is provided as the output carry signal if the bit of the comparison word is equal to the corresponding bit of the data word.

Claims 34-36 are supported by the specification page 8, lines 2-21 and by Figure 2, for example.

Ao does not teach the use of a carry signal – the comparators 13, 15, 21 etc. in Figure 1, have only two inputs (a CAM word and a key to be compared). Neither Lin nor Shultz teach the use of a magnitude comparator. Thus a combination of Ao with Lin and/or Shultz does not teach or render obvious the recitations of claims 34-36.

Applicant requests that a notice of Allowance for claims 34-36 be mailed at the Examiner's earliest convenience.

In light of the foregoing amendments and explanations, applicant submits that all rejections of the claims have been overcome. Allowance of claims 1-36 is therefore respectfully requested at the Examiner's earliest convenience. Although additional arguments could be made for the patentability of each of the claims, such arguments are believed unnecessary in view of the above discussion. The undersigned wishes to make it clear that not making such arguments at this time should not be construed as a concession or admission to any statement in the Office Action.

Please contact the undersigned if you have any questions regarding this application.

Respectfully submitted,



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